2010 Military Health System Conference

Variations in Healthcare: Preliminary Findings

Part 1 – Developing a repeatable method of inquiry and improvement for the MHS

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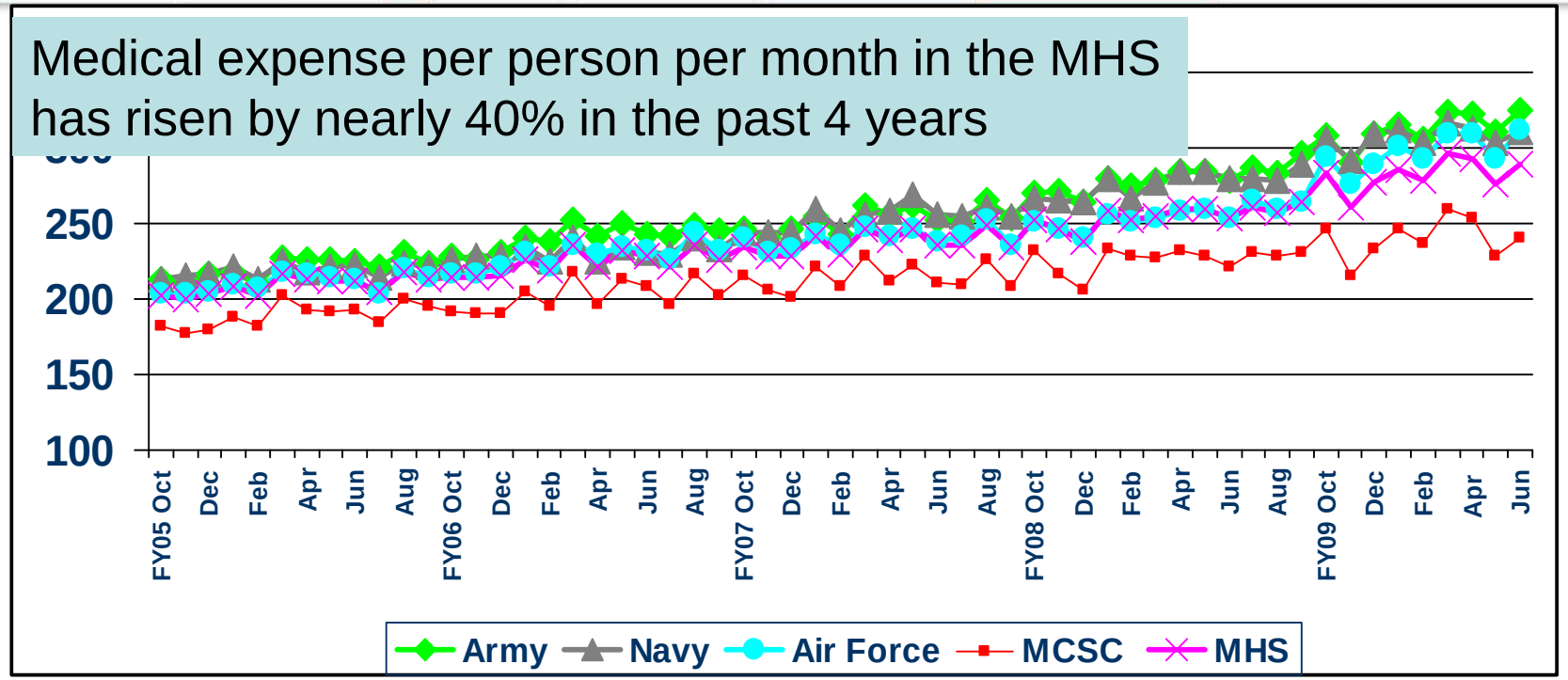
The Cost Conundrum – Is it possible to improve quality and reduce costs

- One way is to follow evidence based guidelines to avoid unnecessary or dangerous tests or procedures
  - Supports the quadruple aim
- Need to identify areas of focus for our population
  - Start with cost drivers

Medical Cost Per Equivalent Life Per Month (PMPM)

Medical expense per person per month in the MHS has risen by nearly 40% in the past 4 years



	FY05 YTD	FY06 YTD	FY07 YTD	FY08 Q1	FY08 Q2	FY08 Q3	FY08 Q4	FY08 YTD	FY09 Q1	FY09 Q2	FY09 Q3	FY09 YTD
Army	221	241	249	268	278	283	289	279	303	315	320	312
Navy	219	231	249	265	275	283	283	277	302	311	309	307
Air Force	211	227	236	246	254	257	263	255	286	301	305	297
MCSC: Network/PCM	189	202	214	218	229	228	230	226	232	247	241	240
MHS Total	209	224	234	245	255	257	261	255	273	287	286	282

Data Source: M2 (SIDR/SADR/HCSR-I/HCSR-NI,PDTS); EASIV; Enrollees are adjusted for Age/Gender/Bencat
Current as of Oct 09, with measure reported through Jun 09. (Portions of value are projected due to missing expense data from MTFs.)

Analysis of the contributors to an increase in outpatient PMPM expenses

- From 2005 to 2008 the expense per enrollee per year increased by $317 for non-AD enrollees.
- $68 of that increase, or 21.5% of the total OP increase was caused by an increase in treatment for orthopedic related conditions
- As a rough calculation, if this applied to all enrollees then it would represent a total increase of $68 X 5,000,000 = 340,000,000 over three years or $113,000,000 per year in MHS expenses
- If there was a way to reduce unnecessary treatment while ensuring that the right treatment was delivered to those in need, we could save real dollars and improve outcomes

Note: MDCs and Product Line cannot be combined.

Top 25 Primary Diagnosis for Orthopedic Related Conditions Based on Total Visits

Visits

MDC	Diagnosis Description	2005 DC SADR	2005 TED-Vst	2005 Total Vst	2008 DC SADR	2008 TED-Vst	2008 Total Vst	Change 05/08
8	7242 LUMBAGO	81,650	187,511	269,161	85,820	350,562	436,382	167,221
8	71946 PAIN IN JOINT INVOLVING LOWER LEG	53,814	124,875	178,689	60,957	226,456	287,413	108,724
8	7231 CERVICALGIA	29,079	96,907	125,986	36,229	190,947	227,176	101,190
8	71941 PAIN IN JOINT INVOLVING SHOULDER REGION	30,870	127,100	157,970	35,465	218,443	253,908	95,938
8	71945 PAIN IN JOINT INVOLVING PELVIC REGION AND THIGH	13,043	32,438	45,481	15,335	64,044	79,379	33,898
8	72610 DISORDERS OF BURSAE AND TENDONS IN SHOULDER REGION, UNSPECIFI	9,390	22,761	32,151	11,311	50,690	62,001	29,850
8	7244 THORACIC OR LUMBOSACRAL NEURITIS OR RADICULITIS, UNSPECIFIED	7,028	25,635	32,663	9,687	47,709	57,396	24,733
8	71947 PAIN IN JOINT INVOLVING ANKLE AND FOOT	16,417	29,444	45,861	15,149	54,624	69,773	23,912
8	7243 SCIATICA					38,247	49,461	22,025
8	72871 PLANTAR FASCIAL FIBR					38,363	55,961	19,461
8	7241 PAIN IN THORACIC SPINE					25,333	34,853	15,270
8	7295 PAIN IN LIMB					70,650	114,072	13,473
8	7291 MYALGIA AND MYOSITIS,					34,779	52,040	12,772
8	84500 UNSPECIFIED SITE OF A					31,392	54,883	12,633
8	7245 BACKACHE, UNSPECIFIE					54,753	83,383	11,039
8	71596 OSTEOARTHROSIS, UNS					18,978	35,080	10,954
8	72252 DEGENERATION OF LUM					31,588	38,224	9,680
8	8449 SPRAIN OF UNSPECIFIED					19,464	30,967	8,949
8	72632 LATERAL EPICONDYLITI					21,019	31,451	8,095
8	72210 DISPLACEMENT OF LUM					24,917	30,584	7,100
8	8472 LUMBAR SPRAIN					29,536	37,004	7,026
8	7140 RHEUMATOID ARTHRITIS	12,783	13,779	26,562	11,264	21,578	32,842	6,280
8	8404 ROTATOR CUFF (CAPSULE) SPRAIN	3,472	21,779	25,251	2,384	28,246	30,630	5,379
8	7262 OTHER AFFECTIONS OF SHOULDER REGION, NOT ELSEWHERE CLASSIFIED	6,221	20,523	26,744	4,083	24,935	29,018	2,274
8	8470 NECK SPRAIN	13,746	35,697	49,443	12,359	36,942	49,301	-142

Lumbago, or non-specific lower back pain was the most common diagnosis, and had the greatest increase from 2005 to 2008, accounting for 436,000 visits in 2008

*Total Visits is based on DC Encounters and TED Visits for FY05/08 combined.

Is there unwarranted variation in the treatment of low back pain in the MHS

- If so, there may be an opportunity for improvement
- We need a new methodology to identify and quantify unwarranted variation
- That methodology is known as episode based analysis

Unwarranted Variation in Health Care Delivery

- Variations among communities well known
  - e.g., Dartmouth Atlas or Health Care and dartmouthatlas.org
- See Wennberg Presentation Tuesday morning

Unwarranted Variation in Health Care Delivery

- Wennberg suggests three categories of variation not explained by illness, medical evidence or patient preferences:
  - Effective Care: Evidence-based Care
  - Preference-Sensitive Care
  - Supply-Sensitive Care

Low Back Variation Study

- Preliminary study to examine diagnosis and treatment variations for low back pain relative to evidence-based guidelines
- Background
  - Episodes of care created using the Medical Episode Grouper (MEG)
  - Direct care encounters and purchased care visits during 2007
  - Continuously enrolled during 2007

Low Back Variation Study

- Background continued
  - Excludes: Overseas regions, Eligibles 65 years and older and Guard/Reserve.
  - Qualified episodes
    - Disc disorders substantiated by one hospitalization or two visits separated by seven days
    - Nonspecific pain requires one face-to-face visit

Low Back Variation Study

- Regions studied
  - 46 regions with MHS eligible populations over 30,000 profiled using these criteria representing 2.3 million MHS Eligibles

Demographic Characteristics of the Study Sample

- Included 173,940 episodes
  - 70,684 Army (41%)
  - 46,313 Air Force (27%)
  - 13,912 Marine Corps (8%)
  - 39,845 Navy (23%)
  - 3,186 Other (2%)

- The majority of patients were:
  - 45 years old or younger (60%)
  - Female (51%)
  - Enrollees (57%)
  - Active duty enrollees & dependents (52%)

Episodes of Care

- Health care is typically provided in a series of separate but related services. All of these services must be included to produce a comprehensive economic analysis of the health care delivery system.
- Using an episode approach enables a more appropriate assessment of costs of care and lends itself to the analysis of the processes as well as the outcomes of care.

Episodes of Care

- MEG - Disease-based episodes of care.
- Episode severity predicated on the progression of medical complications of a disease,

  e.g., Coronary Artery Disease:

  Stage 1: Stable angina

  Stage 2: Progressive Angina

  Stage 3: AMI

Lumbar Disc Episodes Defined

Episode Group: 365 Intervertebral Disc Disorders: Lumbar and Lumbosacral

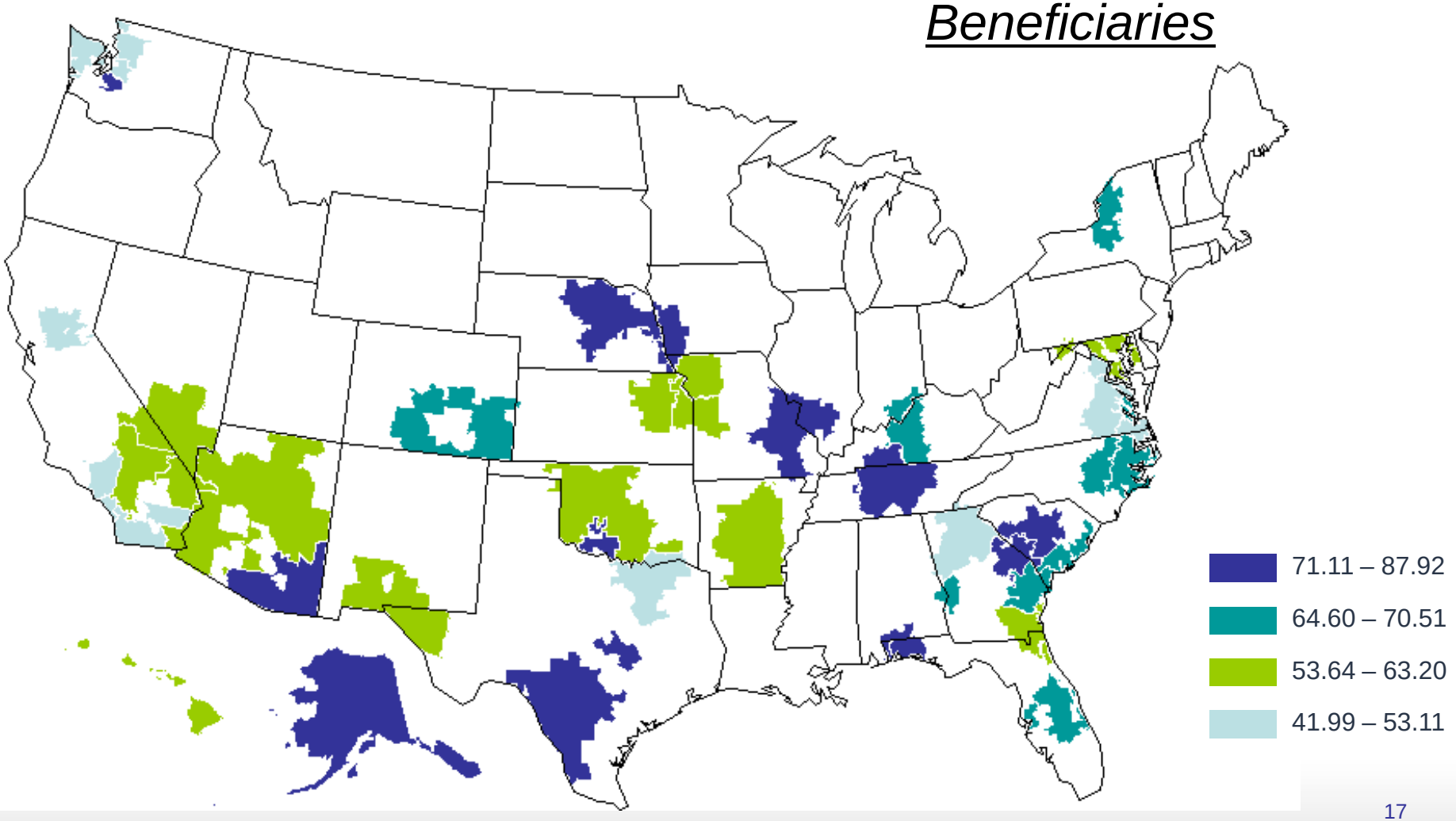
Stage	Description	Diagnostic findings
1.01	Asymptomatic prolapse of the intervertebral disc	Herniated intervertebral disc [spine x-ray or MRI or myelogram report]
1.02	Symptomatic prolapse of the intervertebral disc	Stage 1.01 AND pain radiating to leg(s) or arm(s) OR weakness of arm(s) or leg(s) OR cervical radiculopathy [physical examination or EMG report] OR lumbar radiculopathy [EMG report]
2.01	with loss of bladder or bowel control	Stage 1.01-1.02 AND incontinence of urine OR incontinence of bowels
2.02	with cauda equina syndrome or conus medullaris syndrome	Stage 1.01-2.01 AND **cauda equina syndrome:** OR **conus medullaris syndrome:**
2.03	with paraplegia	Stage 1.01-2.02 AND paraplegia
2.04	with quadriplegia	Stage 1.01-2.03 AND quadriplegia
2.05	with pneumonia (aspiration or bacterial)	Stage 1.01-2.04 AND **pneumonia:**
3.01	with sepsis	Stage 2.05 AND **sepsis:**
3.02	with shock	Stage 2.05-3.01 AND **shock:**
4.00	with death	Stage 2.05-3.02 AND death

Low Back Episodes in MHS Administrative Data

		Episodes	% Total
Lumbar Disc Disorders			
1.01	Asymptomatic prolapse	8,847	5.1%
1.02	Symptomatic prolapse	895	0.5%
2.01	w/Loss of bladder or bowel control	9	0.0%
2.02	w/Cauda equina or conus medullaris	19	0.0%
2.03	w/Paraplegia	2	0.0%
2.05	w/Pneumonia	4	0.0%
		9,776	5.6%
Other Spinal and Back Disorders			
1.01	Lumbago, sciatica, torticollis, other symptoms	146,402	84.2%
1.02	Spinal stenosis, low back	17,735	10.2%
		164,137	94.4%
Total		*173,913*	

Incidence of Nonspecific Low Back Pain in MHS Claims & Encounters

Age/Sex Adjusted Episodes per 1,000 Beneficiaries



Consistencies in Low Back Care

- 5th most common reason for all physician visits in the US
- 85% can't be attributed to a specific disease or abnormality
- Specific diagnosis does not improve outcomes
- Most resolve in 1 month w/noninvasive management, incl. herniation w/radiculopathy

Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. Ann Intern Med 2007;147:478–91

Investigation 1: Variation in Watchful Waiting

Guideline Source: *Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline from the American College of Physicians and the American Pain Society*

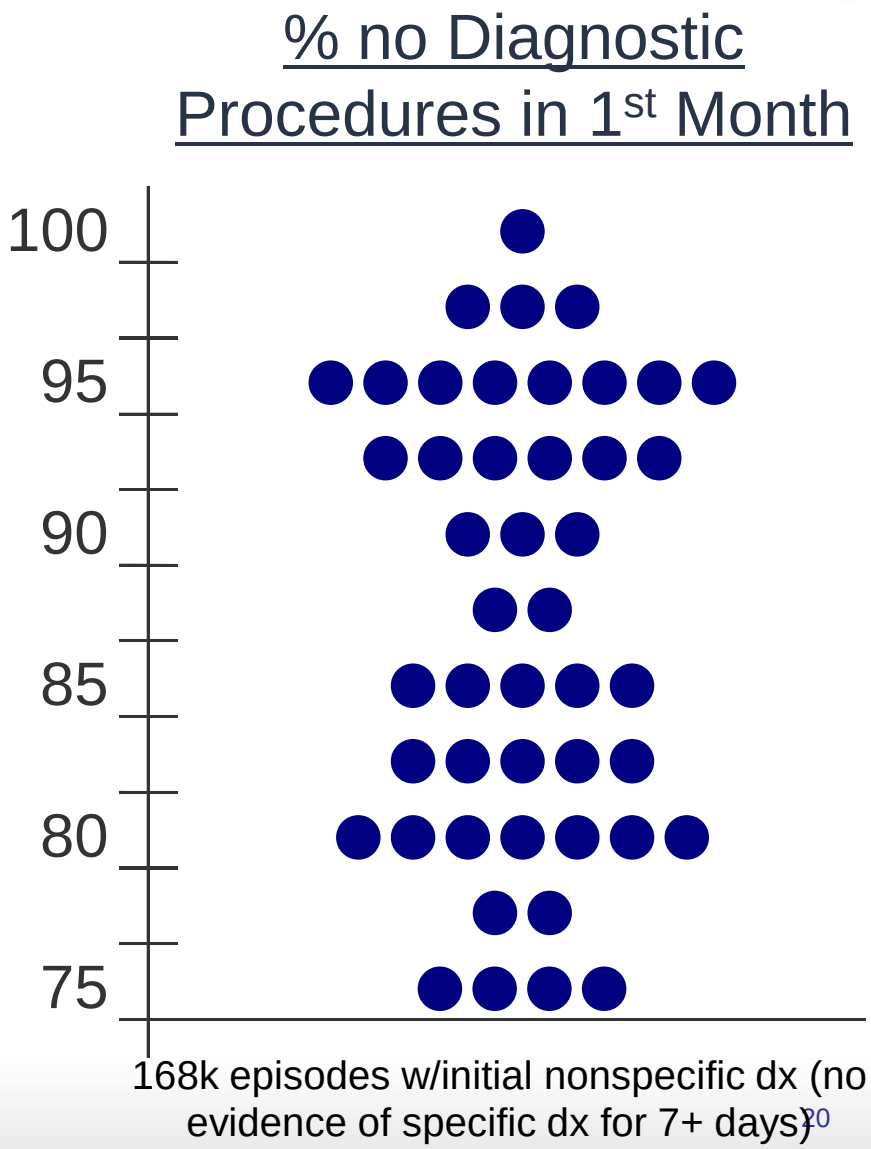
Ann Intern Med; October 2, 2007 vol. 147 no. 7 478-491

- Recommend self-care & medication for 1st month
- No routine diagnostic tests for nonspecific low back pain
- If symptoms persist despite self-care, consider imaging

Investigation 1: Variation in Watchful Waiting

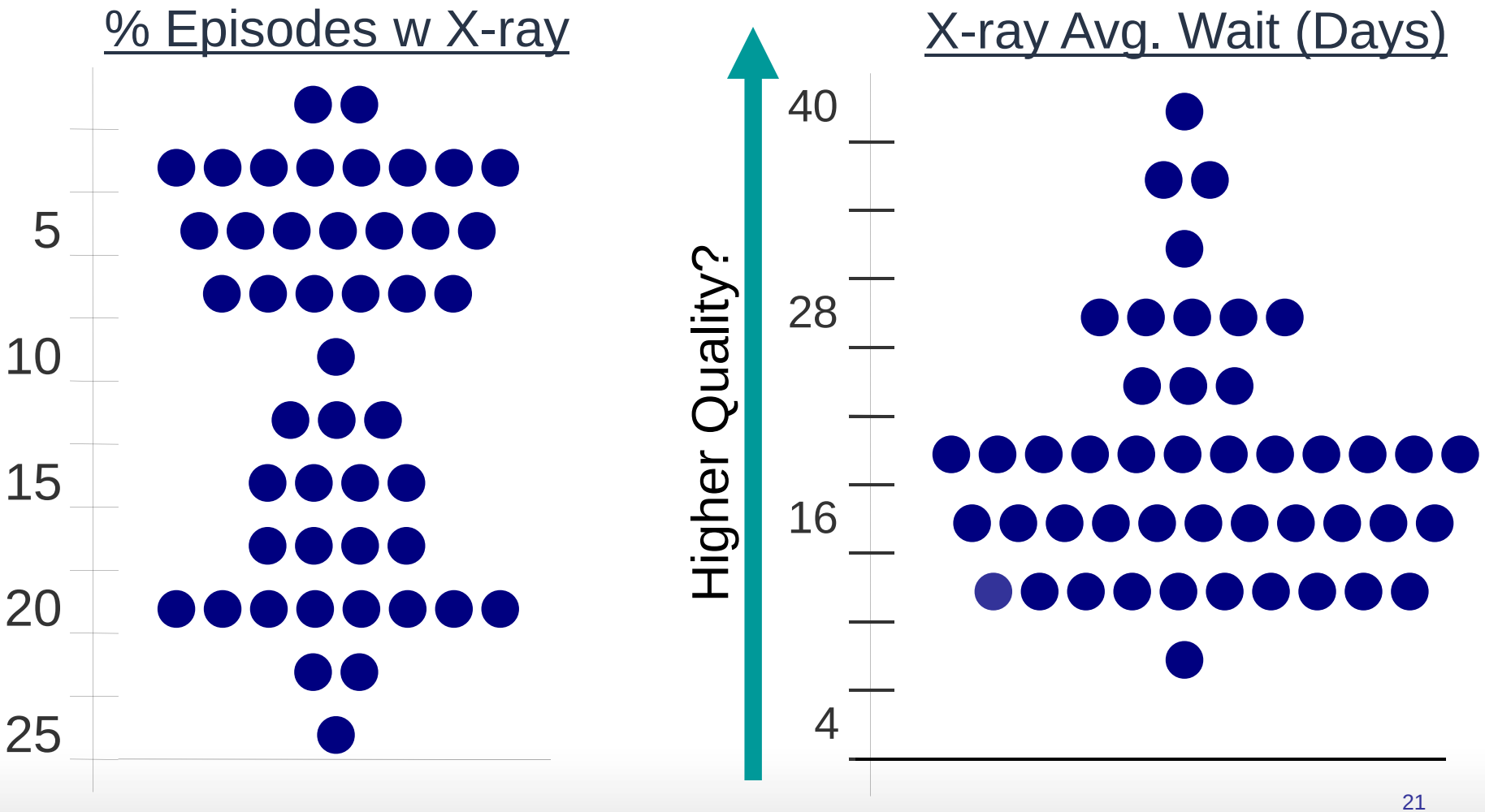
- *…should not routinely obtain imaging ... in patients with nonspecific low back pain (strong recommendation, moderate-quality evidence)*[1]

- Of 168k episodes with initial dx of nonspecific low back
  - 73% resolved within one month (no additional claims for at least 60 days)
  - 88% had no diagnostic procedures in 1st month



[1]Chou R et al. Ann Intern Med 2007;147:478-491

Investigation 2: Variation in use of Plain Film X-Rays



Investigation 2: Variation in use of Plain Film X-Rays

Guideline Source: *Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline from the American College of Physicians and the American Pain Society*

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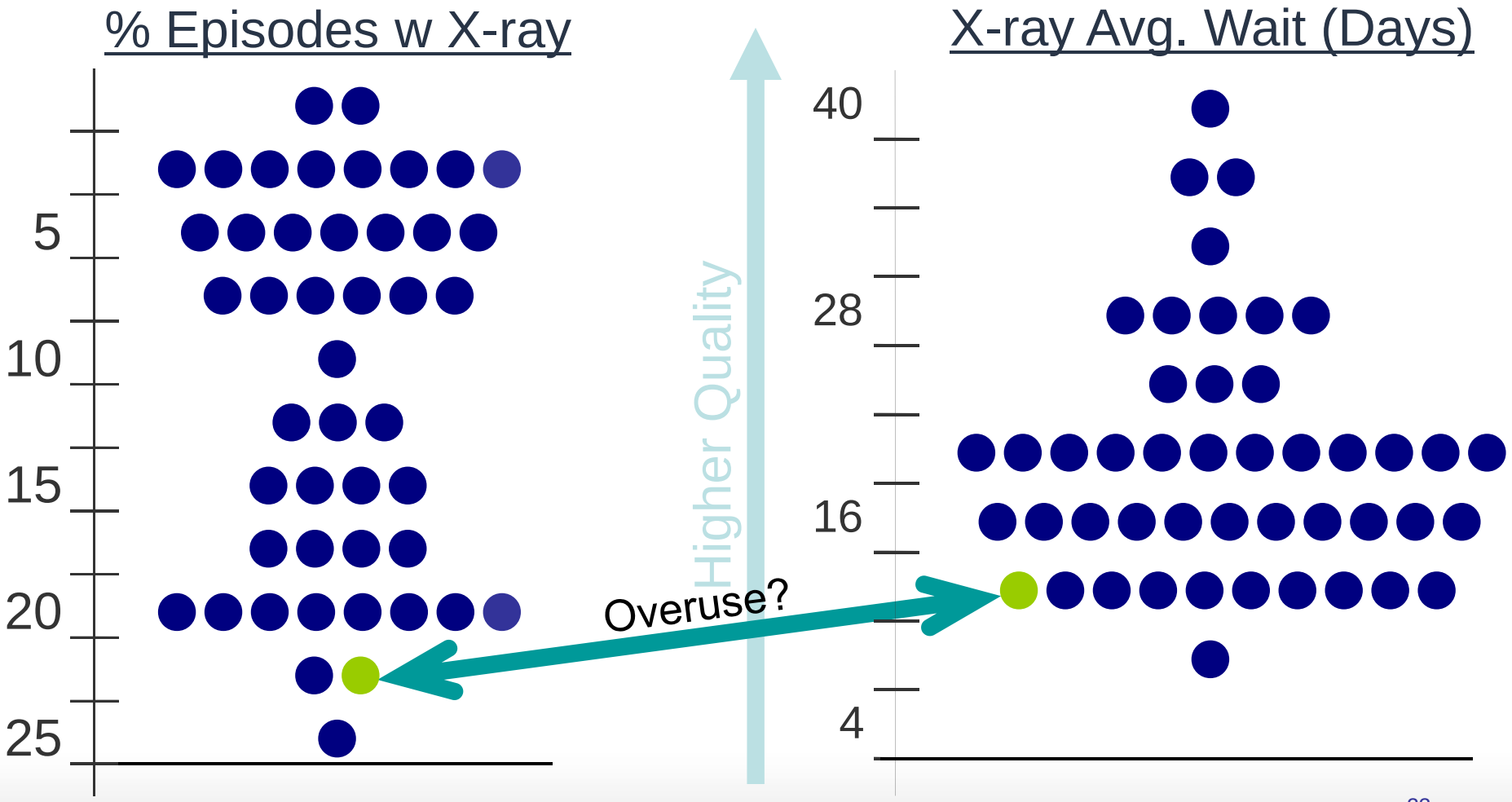
- Careful triage into 3 categories based on H&P:
  1. Nonspecific low back pain
  2. Pain w/potential stenosis or radiculopathy
  3. Pain w/potential other cause, e.g. osteoporosis & risk for compression fracture
- X-ray best for rule-out of fracture in #3; not appropriate for #s 1 or 2

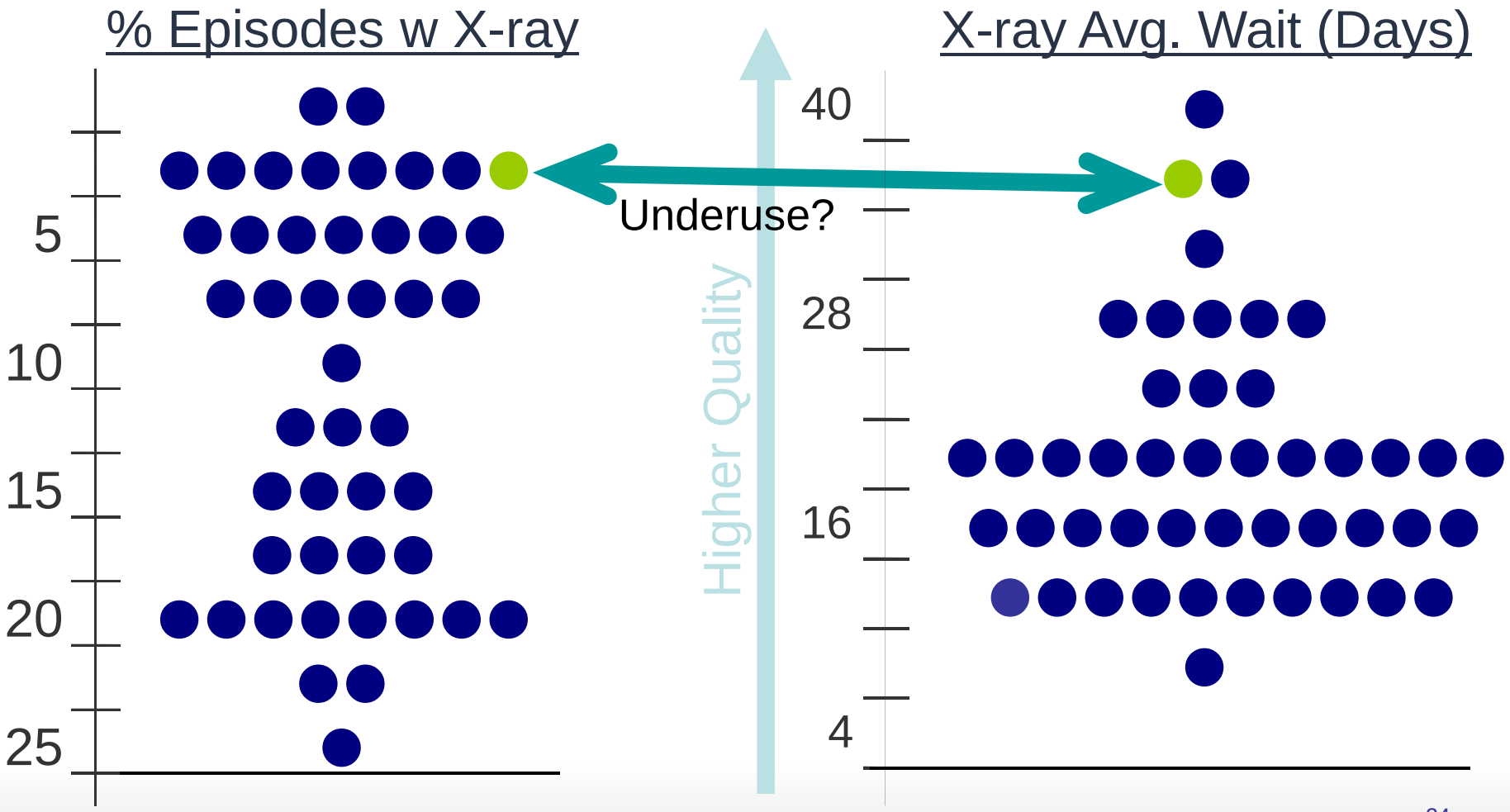
Potential Overuse of Plain Film X-Rays

Augusta, GA's short wait & high rate could indicate overuse



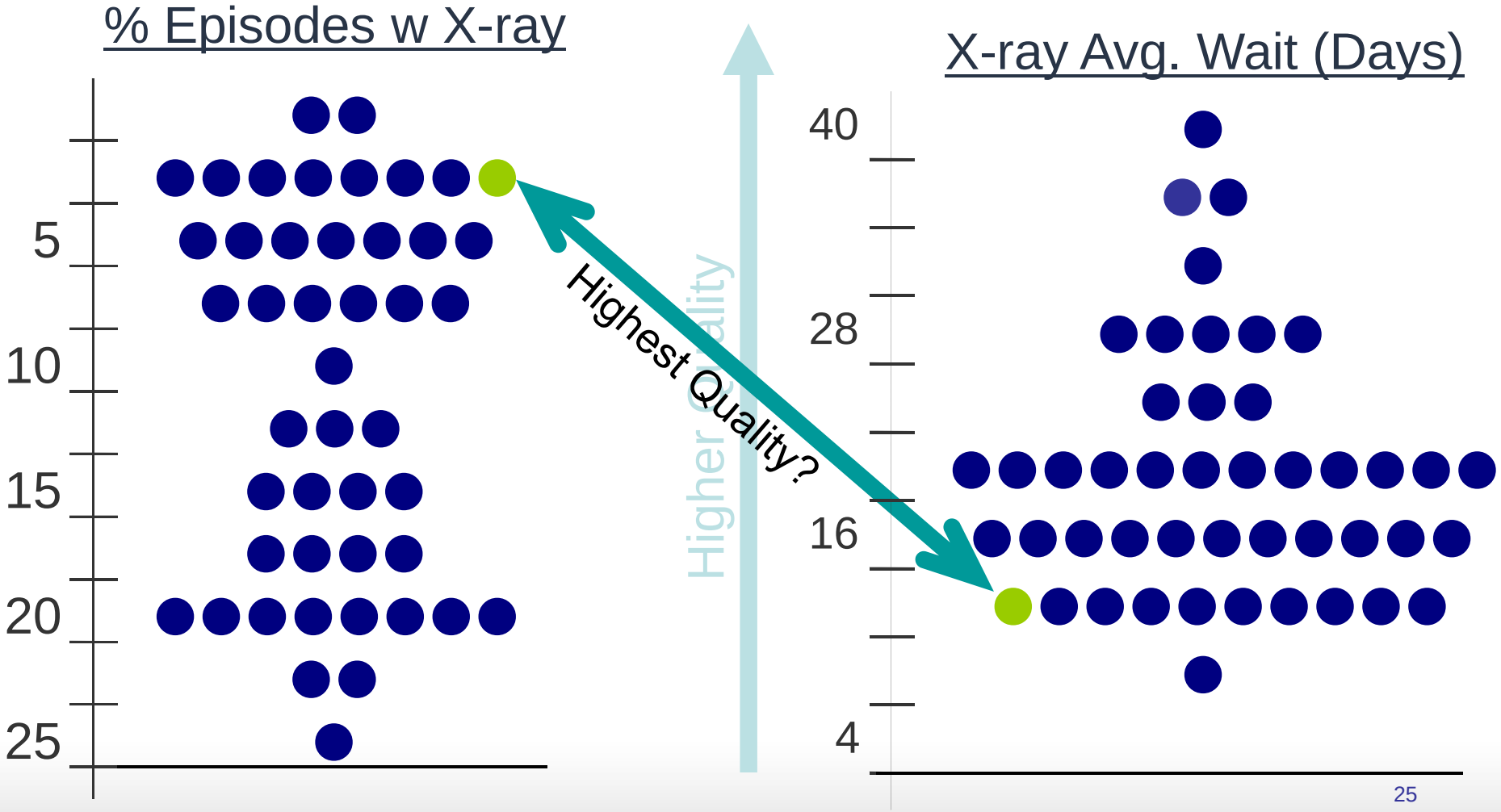
Potential Under-use of Plain Film X-Rays

Long wait & low rate in El Paso, TX could indicate underuse.
If risk of fracture is high, x-ray should be done early.

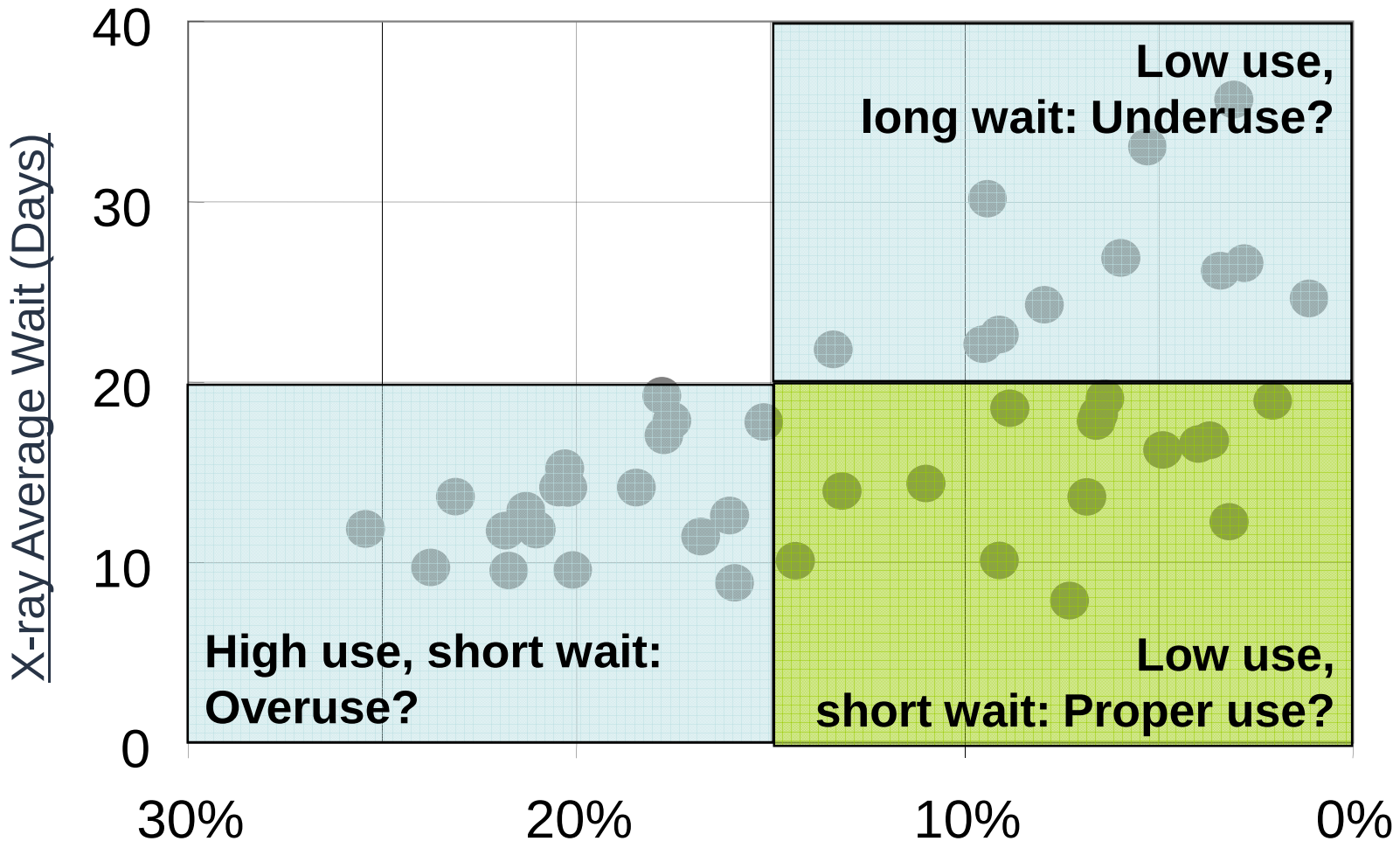


Potential Proper Use of Plain Film X-Rays

Washington, DC's low rate & short wait could indicate careful triage & speedy rule-out of fracture



Variation in Utilization of X-Ray



Next Step – Chart Review (Preliminary Findings)

- Objective
  - Collect baseline measures of the treatment of low back pain
    - Metrics indicators by the 1999 DoD/VA committee
- Methods
  - Retrospective, cross-sectional design
  - Collect administrative data and medical records information
  - Sampling plan based on HEDIS:
    - DoD beneficiaries with primary diagnosis for LBP during FY 2008 - Outpatient & ER visits

- Study Champion

  LCDR Leslie Rassner, MD

  Primary Care Sports Medicine

  Branch Medical Clinic, Naval Base San Diego

Use of Imaging in Low Back Pain – Summary of Preliminary Findings

Imaging Studies	Red Flag Conditions	
	Screen Neg	Screen Pos
Got Imaging	2661 (25%) Overuse?	681 (33%) Recommended
No Imaging	7964 (75%) Recommended	1385 (67%) Underuse?
Totals	10,625 (84%)	2066 (16%)

The chart review confirmed the possibility of both underuse and overuse of imaging studies in the management of low back pain

Summary and Observations

- Low back pain is a significant contributor to increase in per capita costs for the MHS
- Low back pain is an example of preference sensitive care, consistently associated with unwarranted variation
- In the MHS, significant regional variation exists in the prevalence of LBP and in the use of imaging in the management of non-specific LBP
- There is strong suggestion from the available data that both underuse and overuse of imaging could be contributing to sub-optimal quality and cost outcomes

Potential

- This approach may yield a repeatable process for analyzing and improving quality and cost across the MHS:
  - Identify large contributors to per capita cost increases
  - Look for local variation in care intensity (procedures, tests, pharmaceutical use, hospitalization) (MEG)
  - Compare to evidence based guidelines (Chart Review)
  - Implement focused improvement efforts led by community of interest